

REMARKS

This amendment is responsive to the Office Action mailed February 6, 2009 (hereinafter "Office Action"). Claims 1, 2, 4-7, and 9-23 are currently pending in this application. Independent Claims 1, 11, 15, 22, and 23 have been amended and Claim 24 has been canceled. New Claims 25-29 have been added. Applicants respectfully request reconsideration and allowance of the above-identified application.

Claims 1, 5-7, and 19 Are Patentable Over Cai, Morikawa, Agarwal2, and Agarwal

Claims 1, 5-7, 19, and 24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,134,246, to Cai (hereinafter "Cai"), in view of U.S. Patent No. 6,061,354, to Morikawa et al. (hereinafter "Morikawa"), and in view of U.S. Patent No. 6,963,570, to Agarwal2 (hereinafter "Agarwal2"), and U.S. Patent No. 6,819,658, to Agarwal et al. (hereinafter "Agarwal").

Independent Claim 1, as amended, reads as follows:

1. A method for conveying data in a connection between terminals in a communications network comprising at least one low-bit-rate artery and at least one standard-bit-rate artery, the data to be transmitted taking the form of packets having a size smaller than the size of a basic transmission unit, the method comprising:

at a first end of the low-bit-rate artery,

receiving from a first switch a plurality of first basic transmission units, each basic transmission unit comprising a packet of application data formed according to a second protocol, wherein the packet of application data comprises a plurality of coded frames and a header, each of the plurality of coded frames comprising data received by the first switch from a first originating terminal according to a first protocol and converted by a compression algorithm in the first switch;

receiving a plurality of basic transmission units from a different originating terminal;

extracting packets of application data from the plurality of first basic transmission units;

extracting one or more packets of application data from the plurality of basic transmission units received from the different originating terminal;

multiplexing the extracted packets of application data and the one or more packets of application data received from the different originating terminals by inserting into a second basic transmission unit for transmission via the low-bit-rate artery to a second end of the low-bit-rate artery;

setting an adjustable time lag for transmission of the second basic transmission unit when a first of one or more packets of application data is inserted into the second basic transmission unit; and

at an end of the adjustable time lag, transmitting the second basic transmission unit from the first end to the second end of the low-bit-rate artery;

at the second end of the low-bit-rate artery,

extracting the packets of application data from the second basic transmission unit;

inserting the extracted packets of application data into a third basic transmission unit; and

transmitting the packet of application data third basic transmission unit to a terminating terminal.

(Emphasis added.)

Support for the amendments to Claim 1 may be found on page 8, line 10, to page 12, line 25, and Figures 1 and 2 of the original application, among other places. Applicants submit that Cai, alone or in combination with Morikawa, Agarwal2, and Agarwal fails to teach or suggest all of the recitations of Claim 1, as amended.

Specifically, Cai, alone or in combination with Morikawa, Agarwal2, and Agarwal fails to teach or suggest "setting an adjustable time lag for transmission of the second basic transmission unit when a first of one or more packets of application data is inserted into the second basic transmission unit; and at an end of the adjustable time lag, transmitting the second basic transmission unit from the first end to the second end of the low-bit-rate artery." Instead, Cai describes: "The ATM cells belonging to each user packet are then transmitted over a particular low bandwidth connection. As an example, ATM cells 130 representing the first user packet P1 are grouped together and transmitted over one of the plurality of T-1 communication links 40A. While transmitting the first user packet, the first ATM switch adds a sequence number to the packet. Similarly, ATM cells 140 associated with the second user packet P2 are

transmitted over another T-1 communication links 40B." (Col 5, lines 1-8.) Cai simply does not need to set a time lag for transmission of data packets because Cai utilizes a plurality of T-1 links (low-bit-rate arteries) for sending data from different users (originating terminals) instead of transmitting data assembled from different terminals over **a single** low-bit-rate artery in the manner recited in Claim 1.

The Office Action referenced Col. 9, Table 1, element T_Ses_Init_Timer in regard to the adjustable time lag for transmission of a basic transmission unit recited in former Claim 24, which has been canceled and whose subject matter was added to Claim 1. However, as is evident from the description provided in Cai, T_Ses_Init_Timer has nothing to do with an adjustable time lag for transmission. Indeed, T_Ses_Init_Timer is defined as "a timer which is set after a Restart is sent" (Col. 8, line 63). As Cai describes,

The Restart, Restart Ack messages, and the associated session number are used to manage a communication link between the transmitter and the receiver. Before any user data packet can be transmitted, a session must be established therebetween. As an illustration, the transmitter has to send a Restart message with a particular session number. The receiver then adopts the session number provided by the transmitter upon receiving the Restart message and responds with a Restart Ack message. Once the transmitter receives the Restart Ack message, **a session has been established and data packets may be communicated therebetween.** The first switch then communicates the data by setting the message type to 0.times.00000001 (Data) and stores the payload into the payload section 470 of the message (data portion). Each message is also numbered with a packet sequence number and the assigned session number.

A session can last as long as both parties want to. A Restart message sent by either party will terminate the present session and establish a new session. **As an example, a restart could occur if the receiver sees some severely out of sequence packets or find some large number of AAL5 packets failing the CRC checks.** Accordingly, when the receiver transmits a Restart Message, the receiver concedes and attempts to establish a new session. When all of the ATM cells belonging to a particular user packet have been transmitted, the first ATM switch then initiates a Restart to establish a new VC.

(Col. 8, lines 41-48, emphasis added.)

As is clear from the referenced text, the Restart message and the timer T_Ses_Init_Timer set when a Restart message is sent serve to manage a **communication session between a transmitter and a receiver**. As Cai indicates, a transmission session can go as long as both parties want to and clearly does not depend on multiplexing each transmission unit. Furthermore, the timer T_Ses_Init_Timer may expire at the initiative of a receiver, when the receiver sends a Restart message to the transmitter. In summary, the above described timer function is entirely different than that of the adjustable time lag for transmission of a basic transmission unit as recited in Claim 1.

In contrast to Cai's T_Ses_Init_Timer, the adjustable time lag is set for every basic transmission unit to be sent over a low-bit-rate artery. Furthermore, the adjustable time lag has nothing to do with the state of a receiver. Therefore, for the above reasons, Cai, alone or in combination with Morikawa, Agarwal2, and Agarwal, fails to teach or suggest "setting an adjustable time lag for transmission of the second basic transmission unit when a first of one or more packets of application data is inserted into the second basic transmission unit; and at an end of the adjustable time lag, transmitting the second basic transmission unit from the first end to the second end of the low-bit-rate artery."

Also, Cai, alone or combined with Morikawa, Agarwal2, and Agarwal, does not describe data extracted from a first basic transmission unit, multiplexed into a second basic transmission unit, then extracted and inserted in a third basic transmission unit. Instead, Cai, alone or in combination with Morikawa, Agarwal2, and Agarwal, only describes data transmitted either in ATM cells or AAL5 or PDU packets.

In summary, Cai, taken alone or in combination with Morikawa, Agarwal2, and Agarwal, fails to teach or suggest all of the elements of Claim 1. Morikawa, Agarwal2, and Agarwal fail to make up for the deficiencies of Cai discussed above.

As a result, Claim 1, as amended, is submitted to be allowable for at least the above reasons. Because Claims 5–7, and 19 depend directly from Claim 1, which is submitted to be

allowable, Claims 5–7, and 19, are also submitted to be allowable for the same reasons as Claim 1. Claim 24 has been canceled and its rejection is thus moot.

Claim 19 is submitted to be allowable for the following additional reason. The Office Action in its rejection failed to address "the packet of application data further includes a **signaling byte indicating a mode of operation** comprising at least one of voice, fax, or a compression algorithm" recited in Claim 19. (Emphasis added.) While the Office Action referenced a compression algorithm purportedly described in Agarwal2, neither Agarwal2 nor any other reference cited by the Office Action describe a signaling byte indicating a mode of operation recited in Claim 19.

Claims 11 and 15–17 Are Patentable Over Cai and Agarwal

Claims 11 and 15–17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cai, in view of Agarwal.

Claims 11 and 15 have been amended to recite "the adaptation unit is configured to . . . determine a mode of operation of a connection between the originating terminal and the terminating terminal using signaling data inserted in the packets and indicating the mode of operation, the mode of operation comprising at least one of voice, fax, or a compression algorithm used to compress the data." (Emphasis added.) Support for this amendment is found on page 9, lines 19–23 of the original application, among other places. Applicants submit that Cai, alone or in combination with Agarwal, fails to teach or suggest the above recitation. Indeed, Cai only describes a Segmentation and Re-assembly Modules (SARs) configured as follows (Col. 6, lines 3-20, referenced in the Office Action in regard to Claims 11 and 15):

A second application module 370 associated with the second SAR module 360 then reassembles the received ATM cells into a PDU or AAL5 packet and places it in a designated memory location 380. A CPU 330 associated with the second ATM switch 50 re-sequences the received AAL5 or PDU packet with other packets received over other T-1 communication links and transmits them back down to the second SAR module 360. The second SAR module 360 then de-assembles the AAL5

packets into a number of ATM cells and utilize a routing table 390 to transmit the cells over an outgoing OC-3 communication link 60 in a conventional manner.

As is evident from the referenced text, Cai's SAR module does not determine a mode of operation of a connection using signaling data inserted in the packets as recited in Claims 11 and 15.

Therefore, for at least the above reasons, Claims 11 and 15 are submitted to be allowable over Cai and Agarwal since Agarwal fails to make up for the deficiencies of Cai discusses above. Claims 16 and 17 depend from Claim 15 and are submitted to be allowable for at least the same reasons as Claim 15.

Claims 20 and 21 Are Patentable Over Cai, Agarwal, and McCormack

Claims 20 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cai, in view of Agarwal, and in further view of U.S. Patent Publication No. 2006/0133386, to McCormack (hereinafter "McCormack"). Because Claim 20 depends from Claim 11, which is submitted to be allowable, and Claim 21 depends from Claim 15, which is submitted to be allowable, Claims 20 and 21 are also submitted to be allowable for the same reasons as Claims 11 and 15. McCormack does not make up for the deficiencies of Cai and Agarwal as discussed above in regard to Claims 11 and 15.

Claims 12-14 Are Patentable Over Cai, Agarwal, and Beshai

Claims 12-14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cai"), in view of Agarwal, and in further view of U.S. Patent No. 6,339,488, to Beshai et al. (hereinafter "Beshai"). Because Claims 12-14 depend directly or indirectly from Claim 11, which is submitted to be allowable, Claims 12-14 are also submitted to be allowable for the same reasons as Claim 11. Beshai et al. does not make up for the deficiencies of Cai and Agarwal as discussed above in regard to Claim 11.

Claim 18 Is Patentable Over Cai, Morikawa, Agarwal2, Agarwal, and McCormack

Claim 18 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cai, in view of Morikawa, Agarwal2, and Agarwal, and in further view of McCormack.¹ Because Claim 18 depends from Claim 1, which is submitted to be allowable, Claim 18 is also submitted to be allowable for the same reasons as Claim 1. McCormack does not make up for the deficiencies of Cai, Morikawa, Agarwal2 and Agarwal as discussed above in regard to Claim 1.

Claims 22 and 23 Are Patentable Over Cai, Agarwal2, and Agarwal

Independent Claims 22 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cai, in view of Agarwal2 and Agarwal. Claims 22 and 23 have been amended with the subject matter of, and in a manner similar to, Claims 11 and 15. As a result, Claims 22 and 23 are submitted to be allowable for at least the same reasons as Claims 11 and 15 because Agarwal2 does not make up for the deficiencies of Cai and Agarwal as discussed above in regard to Claims 11 and 15.

Claims 2, 4, and 10 Are Patentable Over Cai, Agarwal2, Agarwal, Morikawa, and Kim

Claims 2, 4, and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Cai, in view of Morikawa, in view of Agarwal2, and Agarwal, and in further view of U.S. Patent No. 6,594,266 to Kim et al. (hereinafter "Kim"). Because Claims 2, 4, and 10 depend directly or indirectly from Claim 1, which is submitted to be allowable, Claims 2, 4, and 10 are also submitted to be allowable for the same reasons as Claim 1. Kim does not make up for the deficiencies of Cai, Morikawa, Agarwal2 and Agarwal as discussed above in regard to Claim 1.

¹ The Office Action referenced Claims 20 and 21 as rejected in this section of the Office Action (page 26), but in fact addressed Claim 18. Applicants assume that Claims 20 and 21 were referenced in the Office Action in error.

Claim 9 Is Patentable Over Cai, Agarwal2, Agarwal, Morikawa, and Stacey

Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Cai, in view of Morikawa, Agarwal2, and Agarwal, and in further view of U.S. Patent No. 6,819,658, to Stacey. Because Claim 9 depends from Claim 1, which is submitted to be allowable, Claim 9 is also submitted to be allowable for the same reasons as Claim 1. Stacey does not make up for the deficiencies of Cai, Morikawa, Agarwal2 and Agarwal as discussed above in regard to Claim 1.

New Claims 25–29 Presents Patentable Subject Matter

New Claims 25–29 have been added but do not introduce new subject matter.

Claim 25 is directed to the method of Claim 1,

. . . wherein the third basic transmission unit enables the terminating terminal to:
extract the packets from the third basic transmission unit;
determine a mode of operation of the connection between first originating terminal and the terminating terminal;
extract the coded frames from the packet of application data; and
decompress the coded frames to recreate the data.

Support for the subject matter of Claim 25 is found on page 12, lines 14–24, of the original application, among other places. Applicants have carefully considered the references, and submit that none of the references, considered alone or in combination, teaches or suggests the above recitation of Claim 25. Accordingly, for at least its dependence on allowable base Claim 1 and for the additional subject matter it recites, Claim 25 is patentable over the cited art and should be allowed.

New Claims 26 and 27 depend from independent Claims 11 and 15, respectively, and recite, "wherein data from the originating terminal transmitted on the at least one standard-bit-rate artery multiplexed with data from another originating terminal onto the at least one low-bit-rate artery is transmitted over the one or more low-bit-rate arteries at an end of an adjustable time lag, the time lag being set when a first packet is inserted in a basic transmission unit" (as recited

in Claim 26; Claim 27 recites a similar feature wherein the data is transmitted over the one or more low-bit-rate arteries).

New Claims 28 and 29 depend from independent Claims 22 and 23 respectively and recite "the first multiplexer device is further configured to multiplex the extracted packets into a second basic transmission unit for transmission to a second end of the low-bit-rate artery at an end of an adjustable time lag, the time lag being set when a first packet is inserted in the second basic transmission unit." Support for the feature recited in Claims 26-29 is found on page 11, lines 13-17, of the original application.

Applicants submit that none of the references, taken alone or in combination, fails to teach or suggest the above feature of Claims 26-29 as discussed in detail above in regard to Claim 1. Accordingly, for at least their dependence on allowable base claims and for the additional subject matter they recite, Claims 26-29 are patentable over the cited art and should be allowed.

CONCLUSION

In view of the foregoing remarks, applicants respectfully submit that the above-referenced patent application is in condition for allowance. Reconsideration of the application and allowance of the pending claims are respectfully requested. If any questions remain, applicants request that the Examiner contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

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